

1 SIGNAL SEPARATION METHOD AND APPARATUS FOR RESTORING
2 ORIGINAL SIGNAL FROM OBSERVED DATA

3 Abstract

4 The present invention provides methods and apparatus to
5 stably separate and extract an original signal from multiple
6 signals by a few calculation steps when multiple signals
7 have been observed in a mixed state. In an example
8 embodiment, signals are separated by introducing a function
9 having a monotonously increasing characteristic like an
10 exponential type function as a cost function, and applying
11 an adaptive algorithm that minimizes that cost function in
12 terms of a signal separation matrix. Then, an error signal
13 e(t) is calculated based on y(t) formed by this nonlinear
14 function, the estimated separation matrix W(t-1) estimated
15 at the previous cycle, and the observed signal x(t) at that
16 time. Then, based on the calculated error signal e(t), the
17 update of the separation matrix W(t) at that time is
18 performed such that consideration weight is increased when
19 estimation errors are large using the cost function having a
20 monotonously increasing characteristic.

21 [Selected Drawing] Fig. 2